II. REMARKS

Claims 1-23 are pending. Claims 13-21 and 23 are allowed, and the Applicants' attorney has amended claim 9. In light of the following, all of the claims as amended are now in condition for allowance, and, therefore, the Applicants' attorney requests the Examiner to withdraw all of the outstanding rejections. Furthermore, if after considering this response the Examiner does not allow all the claims, the Applicant's attorney requests that the Examiner contact him to schedule a teleconference to further the prosecution of the application.

Rejection of Claim 9 Under 35 U.S.C. § 102(b) As Being Anticipated By U.S. Patent 5,384,671 to Fisher et al.

As discussed below, the Applicants' attorney disagrees with this rejection.

Claim 9 as amended recites a processor operable to detect one of the servo wedges during or after a disk spin-up search operation without first detecting a spin-up wedge, the detected servo wedge being the first servo wedge detected after initiation of the disk spin-up search operation.

For example, referring, *e.g.*, to FIGS. 4-8 and the corresponding text of the patent application, a servo circuit 30 (FIG. 5) can detect and recover servo data from a first-detected servo wedge on spin up of a disk without detecting a spin-up wedge (*e.g.*, a DC-erase field 158 (FIG. 17)) before detecting and recovering data from the servo wedge. The circuit 30 does this by asynchronously detecting the preamble of a servo wedge as described on pp. 11-14. This allows one to eliminate the spin-up wedges from the disk, thus allowing more space to store application data.

In contrast, referring, *e.g.*, to FIG. 2A and col. 6, line 60 – col. 7 line 48, Fisher's circuit 10 (FIG. 4) must first detect an asynchronous servo address mark 124 (*i.e.*, a spin-up wedge) on initialization (*i.e.*, spin up) of the disk before the circuit can detect and recover servo data from the first servo wedge detected after initialization of the disk.

Rejection of Claims 1-8 and 10-12 Under 35 U.S.C. § 103(a) As Being Unpatentable Over Fisher in View of U.S. Patent 6,680,807 to She et al.

Claim 1

Claim 1 recites a synchronous partial-response-maximum-likelihood servo channel operable to recover servo data from servo wedges, the servo channel inoperable to recover data from data sectors.

For example, referring, *e.g.*, to FIGS. 5, 13, and 19 and the corresponding written description in the patent application, a servo circuit 30 includes a Viterbi detector 56 that is constructed to recover servo data from servo wedges, but not application data from data sectors. Specifically, the trellis (FIG. 13) according to which the Viterbi detector 56 operates is pruned according to the coding scheme of the servo data. Because the application data is coded differently than the servo data, the Viterbi detector cannot recover the application data from the data sectors — another Viterbi detector recovers the application data. This allows the servo data and application data to have different spectrums (*e.g.*, PR4) and significantly different coding schemes because each Viterbi detector can be pruned and otherwise customized for the respective data (servo or application) that it recovers.

In contrast, the combination of Fisher and She does not suggest a synchronous partial-response-maximum-likelihood servo channel operable to recover servo data from servo wedges but inoperable to recover data from data sectors.

Referring, *e.g.,* to FIG. 4, col. 2, lines 48-51, and col. 13, line 48 – col. 14, line 10, Fisher discloses a single Viterbi detector 50 — a Viterbi detector is a synchronous partial-response-maximum-likelihood detector — that recovers both servo data from servo wedges and application data from data sectors. That is, the servo data has the same spectrum (*e.g,* PR4) and a similar coding scheme as the application data such that the Viterbi detector 50 can and does recover both the servo data and the application data.

And referring, *e.g.,* to FIG. 5-7, col. 4, line 63 – col. 7, line 8, She discloses a sub-pattern servo mark detector 540 that cannot recover data from data sectors but that is not a synchronous partial-response-maximum-likelihood detector.

Consequently, the combination of Fisher and She would not have motivated one to conceive of a synchronous partial-response-maximum-likelihood servo channel operable to

recover servo data from servo wedges but inoperable to recover data from data sectors. Although Fisher teaches that it is desirable to detect servo data synchronously such as with a Viterbi detector 50 (FIG. 4), it teaches away from servo-detection circuitry that is separate from the data-detection circuitry, and thus teaches away from servo channel that cannot recover data from data sectors. Col. 2, lines 13-16, 27-30, and 47-50. And although She teaches a servo detector 540 that cannot recover data from a data sector, it teaches away from a servo detector being a partial-response-maximum-likelihood (*e.g.,* Viterbi) detector because such a servo detector has problems detecting misaligned servo marks. Col. 3, line 58 – col. 4, line 4. Therefore, because She teaches away from a partial-response-maximum-likelihood servo detector and Fisher teaches away from a servo detector that cannot recover data from data sectors, the combination of Fisher and She teaches away from a synchronous partial-response-maximum-likelihood servo channel that cannot recover data from data sectors.

Claims 2-8 and 10-12

These claims are patentable by virtue of their dependencies from claim 1.

Rejection of Claims 4, 8, and 11 Under 35 U.S.C. § 103(a) As Being Unpatentable Over Fisher in View of She and Further in View of U.S. Patent 6,108,151 to Tuttle et al.

These claims are patentable by virtue of their dependencies from claim 1.

Rejection of Claim 12 Under 35 U.S.C. § 103(a) As Being Unpatentable Over Fisher in View of U.S. Patent 5,818,655 to Satoh et al.

This claim is patentable by virtue of its dependency from claim 1.

Rejection of Claim 9 Under 35 U.S.C. § 103(a) As Being Unpatentable Over Fisher in View of Tuttle

As discussed below, the Applicants' attorney disagrees with this rejection.

Claim 9 as amended recites a processor operable to detect one of the servo wedges during or after a disk spin-up search operation without first detecting a spin-up

wedge, the detected servo wedge being the first servo wedge detected after initiation of the disk spin-up search operation.

For example, referring, *e.g.*, to FIGS. 4-8 and the corresponding text of the patent application, a servo circuit 30 (FIG. 5) can detect and recover servo data from a first-detected servo wedge on spin up of a disk without first detecting a spin-up wedge (*e.g.,* a DC-erase field 158 (FIG. 17)). The circuit 30 does this by asynchronously detecting the preamble of the first-detected servo wedge as described on pp. 11-14. This allows one to eliminate the spin-up wedges from the disk, thus allowing more space to store application data.

In contrast, neither Fisher nor Tuttle, nor their combination, teaches or suggests detecting a servo wedge during or after a disk spin-up search operation without first detecting a spin-up wedge, where the detected servo wedge is the first servo wedge detected after initiation of the disk spin-up operation. Referring, *e.g.,* to FIG. 2A, col. 6, line 60 – col. 7 line 48, and col. 13 lines 12-47, Fisher's circuit 10 (FIG. 4) must first detect an asynchronous servo address mark 124 (*i.e.*, a DC erase spin-up wedge) on initialization (*i.e.*, spin up) of the disk before the circuit can detect and recover servo data from a first servo wedge. Similarly, referring, *e.g.,* to FIG. 3 and col. 15 lines 13-30, Tuttle's servo address mark detector A126 must first detect an asynchronous servo address mark on initialization of the disk before Tuttle's circuit can detect and recover servo data from a first servo wedge.

Rejection of Claim 22 Under 35 U.S.C. § 103(a) As Being Unpatentable Over Tuttle in View of Fisher

As discussed below, the Applicants' attorney disagrees with this rejection.

Claim 22 recites asynchronously detecting a servo sector without first detecting a spin-up wedge.

For example, referring, *e.g.*, to FIGS. 4-8 and the corresponding text of the patent application, a servo circuit 30 (FIG. 5) can detect and recover servo data from a first-detected servo wedge on spin up of a disk without first detecting a spin-up wedge (*e.g.,* a DC-erase field 158 (FIG. 17)) by asynchronously detecting the preamble of the servo wedge as described on pp. 11-14. This allows one to eliminate the spin-up wedges from the disk, thus allowing more space to store application data.

In contrast, neither Fisher nor Tuttle, nor their combination, teaches or suggests asynchronously detecting a servo wedge without first detecting a spin-up wedge. Referring, *e.g.*, to FIG. 2A, col. 6, line 60 – col. 7 line 48, and col. 13 lines 12-47, Fisher's circuit 10 (FIG. 4) can asynchronously detect a servo wedge (on initialization, *i.e.*, spin up, of the disk) only by first detecting an asynchronous servo address mark 124 (*i.e.*, a DC erase spin-up wedge). Only by synchronously detecting a servo wedge after disk initialization can the circuit 10 avoid first detecting the servo address mark 124. Similarly, referring, *e.g.*, to FIG. 3 and col. 15 lines 13-30, Tuttle's circuitry (servo address mark detector A126) can asynchronously detect a servo wedge (on initialization of the disk) only by first detecting a servo address mark (*i.e.*, a DC erase spin-up wedge).

Conclusion

In light of the foregoing and in addition to the allowed claims 13-21 and 23, claims 1-8, 10-12, and 22 as previously pending and claim 9 as amended are in condition for full allowance, which is respectfully requested.

In the event additional fees are due as a result of this amendment, payment for those fees has been enclosed in the form of a check. Should further payment be required to cover such fees you are hereby authorized to charge such payment to Deposit Account No. 07-1897.

DATED this 3rd day of June, 2004.

Respectfully Submitted,

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